

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

- 1 1. (Currently Amended) An image display apparatus comprising:
2 an array substrate;
3 a pixel electrode;
4 a common electrode;
5 a switching element to control supply of an electric potential to the pixel electrode; and
6 an auxiliary electrode forming an auxiliary capacitance between a portion of the auxiliary
7 electrode and a portion of the pixel electrode,
8 wherein the pixel electrode, common electrode, switching element, and auxiliary
9 electrode are formed on the array substrate,
10 the common electrode adapted to be set at a first electric potential, and
11 the auxiliary electrode adapted to be set at a second, different electric potential.
- 1 2. (Original) The image display apparatus of claim 1, comprising an in-plane switching
2 image display apparatus.
- 1 3. (Previously Presented) The image display apparatus of claim 1, further comprising:
2 a first electric potential supplying section to supply the first electric potential to the
3 common electrode; and
4 a second electric potential supplying section to supply the second electric potential to the
5 auxiliary electrode.
- 1 4. (Original) The image display apparatus of claim 1, wherein an electric field is generated
2 between the pixel electrode and common electrode in response to application of the electric
3 potential to the pixel electrode by the switching element.

1 5. (Currently Amended) The image display apparatus of claim 4, ~~further comprising an~~
2 ~~array substrate, wherein the pixel electrode, common electrode, switching element, and auxiliary~~
3 ~~electrode are formed on the array substrate,~~

4 wherein the electric field being is generally parallel to a surface of the array substrate on
5 which the pixel electrode, common electrode, switching element, and auxiliary electrode are
6 formed.

1 6. (Original) The image display apparatus of claim 1, wherein the switching element
2 comprises a thin film transistor.

1 7. (Original) The image display apparatus of claim 1, further comprising:
2 a signal line, the switching element connected between the signal line and the pixel
3 electrode; and
4 a scanning line to turn the switching element on or off.

1 8. (Original) The image display apparatus of claim 7, wherein the pixel electrode and
2 common electrode are associated with a first display pixel, the image display apparatus further
3 comprising,
4 additional pixel electrodes and common electrodes associated with other display pixels.

1 9. (Original) The image display apparatus of claim 8, wherein the additional pixel
2 electrodes comprise a second pixel electrode, and the additional common electrodes comprise a
3 second common electrode,
4 the image display apparatus further comprising:
5 a second switching element to control an electric potential supplied to the second pixel
6 electrode; and
7 a second auxiliary electrode forming an auxiliary capacitance between a portion of the
8 second auxiliary electrode and a portion of the second pixel electrode,
9 wherein the second common electrode is adapted to be set at the first electric potential,
10 and

wherein the second auxiliary electrode is adapted to be set at the second electric potential.

10. (Withdrawn) The image display apparatus of claim 1, further comprising:

a signal line, the switching element connected between the signal line and the pixel electrode;

a scanning line to turn the switching element on or off;

a shunt line connected to the common electrode; and

a switching section connected between the scanning line and the shunt line,

the switching section adapted to turn on in response to an elevated voltage on the scanning line.

11. (Original) The image display apparatus of claim 1, further comprising a short-circuit detector to detect a source of a short circuit.

12. (Currently Amended) ~~The image display apparatus of claim 11,~~ An image display apparatus comprising:

a pixel electrode;

a common electrode;

a switching element to control supply of an electric potential to the pixel electrode;

an auxiliary electrode forming an auxiliary capacitance between a portion of the auxiliary electrode and a portion of the pixel electrode,

the common electrode adapted to be set at a first electric potential, and

the auxiliary electrode adapted to be set at a second, different electric potential; and

a short-circuit detector to detect a source of a short circuit,

wherein the short-circuit detector is adapted to produce a first current in response to a short circuit at a first source and to produce a second, different current in response to a short circuit at a second source.

1 13. (Original) The image display apparatus of claim 12, wherein the short-circuit detector
2 comprises switching elements, a first one of the switching elements to turn on in response to a
3 short circuit at a first location, and a second one of the switching elements to turn on in response
4 to a short circuit at a second location.

1 14. (Original) The image display apparatus of claim 13, wherein at least one of the switching
2 elements comprises a diode.

1 15. (Currently Amended) ~~The image display apparatus of claim 1, further comprising:~~ An
2 image display apparatus comprising:

3 a pixel electrode;

4 a common electrode;

5 a switching element to control supply of an electric potential to the pixel electrode;

6 an auxiliary electrode forming an auxiliary capacitance between a portion of the auxiliary
7 electrode and a portion of the pixel electrode,

8 the common electrode adapted to be set at a first electric potential, and

9 the auxiliary electrode adapted to be set at a second, different electric potential; and

10 a signal line, the switching element connected between the signal line and the pixel
11 electrode,

12 wherein an absolute value of a difference value between the second electric potential of
13 the auxiliary electrode and a center electric potential of the signal line is less than an absolute
14 value of a difference value between the center electric potential of the signal line and the first
15 electric potential of the common electrode.

1 16. (Original) The image display apparatus of claim 15, wherein the center electric potential
2 of the signal line is a value obtained by taking an average of a maximum value and a minimum
3 value of the electric potential of the signal line.

1 17. (Original) An in-plane switching image display apparatus that comprises an array
2 substrate, and a pixel electrode and a common electrode corresponding to a display pixel on the
3 array substrate, the image display apparatus to display an image by controlling the electric
4 potential of said pixel electrode to produce an electric field parallel to a surface of said array
5 substrate, said array substrate comprising:
6 a switching element to control the electric potential supplied to said pixel electrode;
7 an auxiliary electrode that forms an auxiliary capacitance between itself and at least a part
8 of said pixel electrode;
9 a scanning line to control a drive state of said switching element;
10 a signal line that has a changing electric potential in relation to a prescribed center
11 electric potential, the signal line to supply the electric potential to said pixel electrode via said
12 switching element;
13 a common electrode electric potential supplying section to supply an electric potential
14 different from said center electric potential to said common electrode; and
15 an auxiliary electrode electric potential supplying section to supply an electric potential to
16 said auxiliary electrode such that an absolute value of a difference value from said center electric
17 potential of said signal line is smaller than an absolute value of a difference value between the
18 center electric potential of said signal line and the electric potential supplied by said common
19 electrode electric potential supplying section.

1 18. (Original) An in-plane switching image display apparatus that comprises an array
2 substrate and a pixel electrode and a common electrode corresponding to a display pixel on the
3 array substrate, the image display apparatus to display an image by controlling the electric
4 potential of said pixel electrode to produce an electric field parallel to a surface of said array
5 substrate, said array substrate comprising:
6 a switching element to control the electric potential supplied to said pixel electrode;
7 a scanning line to control a drive state of said switching element;
8 a signal line to supply an electric potential via said switching element to said pixel
9 electrode;
10 a common electrode electric potential supplying section to supply an electric potential to
11 said common electrode,
12 an auxiliary electrode that forms auxiliary capacitance between itself and at least a part of
13 said pixel electrode;
14 an auxiliary electrode electric potential supplying section to supply an electric potential to
15 said auxiliary electrode;
16 a first switching section;
17 a shunt line connected to said scanning line via the first switching section whose on/off
18 state is controlled based on an electric potential difference between the shunt line and the
19 scanning line;
20 a second switching section deployed between said common electrode and said auxiliary
21 electrode that controls a conduction state between said common electrode and said auxiliary
22 electrode; and
23 a third switching section deployed between said common electrode and said shunt line
24 that controls the conduction state between said common electrode and said shunt line and has
25 electrical properties different from those of said second switching section.

1 19. (Original) The image display apparatus of claim 18, wherein the electric potential
2 supplied by said auxiliary electrode potential supplying section is such that an absolute value of a
3 difference value from said center electric potential of said signal line becomes smaller than an
4 absolute value of a difference value between the center electric potential and the electric
5 potential supplied by said common electrode electric potential supplying section.

1 20. (Original) The image display apparatus of claim 18, wherein said second switching
2 section and said third switching section share at least some part in common.

1 21. (Original) The image display apparatus of claim 19, wherein said second switching
2 section and said third switching section share at least some part in common.

1 22. (Original) The image display apparatus of claim 18, wherein said common electrode
2 electric potential supplying section and said auxiliary electrode electric potential supplying
3 section each respectively provides a constant electric potential without time dependent changes.

1 23. (Original) The image display apparatus of claim 22, wherein said switching element
2 comprises a thin film transistor.

1 24. (Original) The image display apparatus of claim 18, wherein said switching element
2 comprises a thin film transistor.

1 25. (Original) The image display apparatus of claim 18, wherein said second switching
2 section and said third switching section each comprises a thin film transistor whose gate
3 electrode is short-circuited to one source/drain electrode.

1 26. (Original) The image display apparatus of claim 22, wherein said second switching
2 section and said third switching section each comprises a thin film transistor whose gate
3 electrode is short-circuited to one source/drain electrode.

1 27. (Original) The image display apparatus of claim 23, wherein said second switching
2 section and said third switching section each comprises a thin film transistor whose gate
3 electrode is short-circuited to one source/drain electrode.

1 28. (Original) The image display apparatus of claim 18, further comprising an opposite
2 substrate that is deployed opposite to said array substrate and a liquid crystal layer encapsulated
3 between said array substrate and said opposite substrate.

1 29. (Original) The image display apparatus of claim 22, further comprising an opposite
2 substrate that is deployed opposite to said array substrate and a liquid crystal layer encapsulated
3 between said array substrate and said opposite substrate.

1 30. (Original) The image display apparatus of claim 23, further comprising an opposite
2 substrate that is deployed opposite to said array substrate and a liquid crystal layer encapsulated
3 between said array substrate and said opposite substrate.

1 31. (Original) The image display apparatus of claim 25, further comprising an opposite
2 substrate that is deployed opposite to said array substrate and a liquid crystal layer encapsulated
3 between said array substrate and said opposite substrate.

1 32. (Original) The image display apparatus of claim 28, further comprising a backlight
2 source that provides light that penetrates through the inside of said liquid crystal layer.

1 33. (Currently Amended) A method for use with an image display apparatus having a pixel
2 electrode, a common electrode, and an auxiliary electrode forming an auxiliary capacitance
3 between a portion of the auxiliary electrode and a portion of the pixel electrode, the pixel
4 electrode, common electrode, and auxiliary electrode formed on an array substrate, the method
5 comprising:
6 controlling supply of an electric potential to the pixel electrode on the array substrate
7 with a switching element;
8 setting the common electrode on the array substrate at a first electric potential; and
9 setting the auxiliary electrode on the array substrate at a second, different electric
10 potential.

1 34. (Currently Amended) The method of claim 33, wherein setting the common electrode at
2 a first electric potential is performed by a first electric potential supplying section, and
3 wherein setting the auxiliary electrode at the second electric potential is performed by a
4 second electric potential supplying section.

1 35. (Currently Amended) The method of claim 33, further comprising generating an electric
2 field between the pixel electrode and common electrode in response to application of the electric
3 potential to the pixel electrode by the switching element, the electric field being generally
4 parallel to a surface of the array substrate on which the pixel electrode, common electrode, and
5 auxiliary electrode are formed.